

WHAT IS CLAIMED IS:

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1. An image reproducing method for acquiring digital image data of a photographed image of a subject, obtaining output image data by subjecting the digital image data to preset image processing and outputting a visible image reproducing the photographed image based on the output image data, comprising the steps of:

capturing photographing information in association with the photographed image;

capturing supplementary information relating to at least a part of the captured photographing information; and

reproducing and adding the captured supplementary information to the photographed image.

2. The image reproducing method according to claim 1, wherein the digital image data is a digital image data obtained by photoelectrically reading the photographed image photographing the subject on a photographic film or a digital image data of the photographed image obtained directly by photographing the subject.

3. The image reproducing method according to claim 1, wherein the step of outputting the visible image is at least one of the steps of outputting a photographic print

and displaying onto display means and the step of display on the display means is at least one of the steps of displaying on a monitor and projecting by a projector.

4. The image reproducing method according to claim 1, wherein the supplementary information is an information with respect to the subject of the photographed image or a photographing situation of the photographed image.

5. The image reproducing method according to claim 1, wherein the supplementary information is at least one of character data, document data, audio data, still picture data and motion-picture data.

6. The image reproducing method according to claim 1, wherein, in case of at least one of outputting the visible image on a photographic print and displaying the visible image on a display means, the supplementary information is composited to at least one of the visible image on the photographic print and the displayed visible image on the display means, outputting to a back surface of the photographic print by a back printer, exposed and printed to the back surface thereof, displayed as at least one of characters, documents, still pictures and motion-pictures linking to the visible image displayed on the

display means or output in voice linking to the visible image displayed on the display means.

7. The image reproducing method according to claim 1, wherein at least one of the photographing information and the supplementary information is recorded to a magnetic recording layer of a photographic film which corresponds to a photographing frame of the photographic film to which the photographed image is photographed, recorded optically on the photographic film in accordance with the photographing frame, stored in an IC memory of a photographic film cartridge provided with it in accordance with the photographing frame, recorded into image recording medium on which the digital image data of the photographed image is recorded in accordance with the photographing frame, recorded on a data recording medium in accordance with the photographing frame of the photographic film or the digital image data, recorded in a database in accordance with the photographing frame of the photographic film or the digital image data, and/or recorded on a designated recording ware via networks in accordance with the photographing frame of the photographic film or the digital image data, said at least one of the photographing information or the supplementary information is read out from at least one of the magnetic recording layer, the

recording optically on the photographic film, the IC memory, the image recording medium, the data recording medium, the database and the designated recording ware when the image of said photographing frame is reproduced as the visible image, and the supplementary information captured from the read-out photographing information or the read-out supplementary information is output by being added to a photographed image of said photographing frame.

8. The image reproducing method according to claim 1, wherein, in case of outputting at least one of the visible image on a photographic print and a display screen on the display means, at least one of the photographing information and the supplementary information is optically exposed and printed to a photographing frame of the photographic film to which the image is photographed before the photographic film is developed, when the image of the photographing frame is simultaneously printed or reprinted after the photographic film is developed, the photographing information or the supplementary information, which is optically exposed and printed, is read from the image frame of the photographing frame of the photographic film to which the photographing information or the supplementary information is printed, and supplementary information captured from the read photographing information is

reproduced by being added to the photographic print or the display screen, or the read supplementary information is reproduced, as it is or after it is processed, by being added to the photographic print or the display screen.

9. The image reproducing method according to claim 1, wherein the photographing information is at least a part of a photographing date and time data which is captured in association with the photographed image.

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10. The image reproducing method according to claim 9, wherein the photographing date and time data is data representing at least one of the photographing date and the photographing time of the photographed image or a part of them, and the supplementary information is relating supplementary information which is searched and selected from the supplementary information stored in a database beforehand using at least one of the year, month, date and time of the photographing date and time data as a searching basis.

11. The image reproducing method according to claim 10, wherein the supplementary information is searched and selected based on user designated data in addition to the photographing date and time data.

12. The image reproducing method according to claim 8, wherein the photographing information is at least one of a first data composition containing a photographing location, a second data composition containing the photographing location and a photographing direction, a third data composition containing the photographing location and a photographing magnification and a fourth data composition containing the photographing location, the photographing direction and the photographing magnification, which are captured in association with the photographed image in addition to the photographing date and time data.

13. The image reproducing method according to claim 1, wherein the photographing information is at least one of a first data composition containing a photographing location, a second data composition containing the photographing location and a photographing direction, a third data composition containing the photographing location and a photographing magnification and a fourth data composition containing the photographing location, the photographing direction and the photographing magnification, which are captured in association with the photographed image.

Sub A1 > 14. The image reproducing method according to claim 13, wherein the photographing information includes an information of the photographing location which is captured by a position measuring device using a satellite.

15. The image reproducing method according to claim 13, wherein the supplementary information is an information as to the photographed subject, a photographic point or both, which is specified based on the photographing information of at least one of the first, the second, the third and the fourth data compositions or based on at least one of this photographing information and a map information from the supplementary information stored in a database beforehand.

16. The image reproducing method according to claim 15, wherein said at least one of the photographed subject and the photographic point is specified by a pattern matching between the photographed image and a three-dimensional image, which is created based on the photographing information of said at least one of the first, the second, the third and the fourth data compositions and based on the map information.

17. The image reproducing method according to claim

13, wherein the supplementary information is at least one of character data, document data, audio data, still picture data and motion-picture data as to the photographed subject.

18. The image reproducing method according to claim 13, wherein, in case of at least one of outputting the visible image on a photographic print and displaying the visible image on a display means, the supplementary information is added to at least one of the photographic print and a displayed image on the display means by compositing a three-dimensional computer graphic image to the photographed image or by compositing an image arranged as a database to the photographed image and by outputting the photographic print and/or by displaying on the display means, wherein the three-dimensional computer graphic image is created based on said photographing information and on a map information and whose pattern is matched with the subject of the photographed image, and the image arranged as the database is selected from a plurality of images, which are photographed beforehand and arranged as a database, as an image, whose photographing location and photographing direction are nearest to the photographing location and the photographing direction, and is corrected in accordance with the composition of the photographed



image and the size of the subject.

19. An image reproducing apparatus including image input means for acquiring digital image data of a photographed image of a subject, image processing means for obtaining output image data by subjecting the digital image data obtained by the image input means to preset image processing, and image output means for outputting a photographed image as a visible image based on the output image data which is output from the image processing means, comprising:

photographing information capture means for capturing photographing information in association with the photographed image;

supplementary information capture means for capturing supplementary information relating to at least a part of the photographing information captured by said photographing information capture means; and

supplementary information output means for adding the supplementary information captured by said supplementary information capture means to the photographed image reproduced as the visible image.

20. The image reproducing apparatus according to claim 19, wherein the image input means reads

photoelectrically the digital image data from the photographed image photographing the subject on a photographic film or obtains directly a digital image data of the photographed image by photographing the subject.

21. The image reproducing apparatus according to claim 19, wherein the image output means is at least one of image recording means for outputting a photographic print in which the visible image is reproduced and display means for reproducing and displaying the visible image and the display means is at least one of a monitor for displaying the visible image and a projector for projecting the visible image.

22. The image reproducing apparatus according to claim 19, wherein the supplementary information is an information with respect to the subject of the photographed image or a photographing situation of the photographed image.

23. The image reproducing apparatus according to claim 19, wherein said photographing information capture means captures at least a part of photographing date and time data in association with the photographed image as the photographing information.

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24. The image reproducing apparatus according to claim 23, wherein said photographing information capture means captures at least a part of the photographing date and photographing time of the image as the photographing date and time data, and said supplementary information capture means comprises a database in which the supplementary information is stored and supplementary information selection means for searching the database using at least a part of the photographing date and time data and for selecting the supplementary information relating to at least a part of the photographing date and time data from the supplementary information stored in the database beforehand.

25. The image reproducing apparatus according to claim 24, wherein said supplementary information selection means searches the database and selects the supplementary information based on user designated data in addition to at least a part of the photographing date and time data.

26. The image reproducing apparatus according to claim 23, wherein said photographing information capture means further captures at least one of a first data composition containing a photographing location, a second

data composition containing the photographing location and a photographing direction, a third data composition containing the photographing location and a photographing magnification and a fourth data composition containing the photographing location, the photographing direction and the photographing magnification, which are captured in association with the photographed image in addition to the photographing date and time data.

27. The image reproducing apparatus according to claim 19, wherein said photographing information capture means captures at least one of a first data composition containing a photographing location, a second data composition containing the photographing location and a photographing direction, a third data composition containing the photographing location and a photographing magnification and a fourth data composition containing the photographing location, the photographing direction and the photographing magnification, which are captured in association with the photographed image.

506 A. } 28. The image reproducing apparatus according to claim 27, wherein said photographing information capture means captures the photographing information including the information of the photographing location which is captured

by a position measuring device using a satellite.

29. The image reproducing apparatus according to claim 27, wherein said supplementary information capture means comprises a database for storing the supplementary information as to at least one of the subject and a photographic point, and supplementary information selection means selects and captures the supplementary information as to at least one of the photographed subject and the photographic point, which is specified based on the photographing information of one of the first data composition to the fourth data composition or based on this photographing information and a map information.

30. The image reproducing apparatus according to claim 19, wherein said image output means is at least one of image recording means for outputting a photographic print in which the subject is reproduced and display means for reproducing and displaying the visible image, and wherein said supplementary information output means is at least one of image composite means for extending the supplementary information to digital image information and for compositing the digital image information to the digital image data which is subjected to image processing by said image processing means, outputting means for

outputting the supplementary information to the back surface of the photographic print through a back printer, exposing and printing means for exposing and printing the supplementary information to the back surface of the photographic print, linking means for linking the supplemental information to the visible image on the display means to display the supplemental information as at least one of characters, documents, still pictures and motion-pictures on the display means and audio outputting means for outputting the supplemental information in voice to link it to the visible image on the display means.

31. An image processing method for obtaining the image data of a photographing frame which is photographed with a camera and for obtaining output image data to be output as a visible reproduced image by subjecting the image data to preset image processing, comprising the steps of:

reading photographing information in association with the image of the photographing frame;

determining similarity between respective photographing frames based on the read photographing information; and

subjecting the image data of a plurality of similar frames which are determined to have similarity to similar

image processing so that the qualities of the images reproduced from a plurality of the similar frames are made identical.

32. The image processing method according to claim 31, wherein the photographing information is at least one of a photographing location associated with the image of the photographing frame and the photographing direction of the camera.

33. The image processing method according to claim 32, wherein the photographing information further includes at least one of a photographing magnification and a photographing date and time associated with the image of the photographing frame.

34. The image processing method according to claim 32, wherein the photographing location is information which is captured by a position measuring device using a satellite.

35. The image processing method according to claim 31, wherein the similarity is determined by specifying photographed image subjects using the read photographing information and by determining whether common specified image subjects exist or not.

36. The image processing method according to claim 31, wherein the similarity is determined by determining a degree of similarity between photographing frames as to the read photographing information and by comparing the determined degree of similarity with a preset threshold value.

37. The image processing method according to claim 36, wherein the degree of similarity between the photographing frames is represented by the weighed mean value of the absolute values of the differences determined between the respective ones of the read photographing information or by the weighed mean value of the squares of the respective differences.

38. The image processing method according to claim 31, wherein the similar image processing is processing for determining the exposure of all the frames for a plurality of the similar frames, determining the mean value or the weighted mean value of the determined exposure of the respective similar frames and setting the exposure of each similar frame to the mean value or to the weighed mean value so that the images reproduced from a plurality of the similar frames are made identical.



39. The image processing method according to claim 35, wherein the similar image processing includes processing for making the exposures of the specified image subjects identical so that the densities of the reproduced images of the respective specified image subjects, which are determined similar by the determination of the similarity of them, of a plurality of the photographing frames are made identical.

40. An image processing apparatus for obtaining the image data of a photographing frame which is photographed with a camera and for obtaining output image data to be output as visible reproduced image by subjecting the image data to preset image processing, comprising:

photographing information capture means for capturing at least one photographing information of a photographing location and camera direction in association with the image of the photographing frame;

a similarity determination means for determining similarity between a plurality of photographing frames based on the photographing information captured by said photographing information capture means; and

an image processing means for subjecting the image data of a plurality of the similar frames which are

determined to have similarity by said similarity determination means so that the qualities of the images reproduced from a plurality of the similar frames are made identical.

41. An image reproducing method, comprising the steps of:

recording supplementary information to a supplementary information recording region using a recording medium having a photographing image recording region and the supplementary information recording region;

photographing a subject with a camera on which the recording medium is mounted to record an image to the photographing image recording region of the recording medium; and

automatically or selectively recording the supplementary information recorded to the supplementary information recording region to at least one of the front surface and back surface of a photographic print, a displayed image output on display means or both when the image recorded to the photographing image recording region is output.

42. The image reproducing method according to claim 41, further comprising the step of reproducing the

supplementary information recorded to the supplementary information recording region of the recording medium with the camera on which the recording medium is mounted.

43. The image reproducing method according to claim 41, wherein the recording medium is a film cartridge comprising a case in which a photographic film as a photographing image recording region is accommodated and on which an IC memory as the supplementary information recording region is mounted, or the recording medium is a memory medium which has a photographed image data region and a supplementary information region as well as includes information added thereto with the camera and/or a supplementary information recording means to recognize the address of each region or fixedly includes information for recognizing the address of each region.

44. The image reproducing method according to claim 41, wherein the supplementary information is at least one of information as to a photographing location, information as to a photographing subject and amusement information.

45. The image reproducing method according to claim 41, wherein the supplementary information is recorded to the supplementary information recording region by at least

one of the recording operation executed by a print shop before photographing is carried out and the recording operation executed by the camera on which the recording medium is mounted.

46. A photographing support system, comprising the steps of:

using a recording medium having a photographing image recording region and an information recording region;

recording photographing support information to the information recording region before an image is photographed to the photographing image recording region;

reading the photographing support information from the information recording region with an information reading means mounted on a camera in photographing; and

executing at least one of the control of the photographing operation carried out by the camera and the reproduction of the photographing support information in accordance with the read photographing support information.

47. The photographing support system according to claim 46, wherein the recording medium is a film cartridge comprising a case in which a photographic film as a photographing image recording region is accommodated and on which an IC memory as an information recording region is

mounted, on the recording medium is a memory medium which has a photographed image data region and an information recording region as well as includes information added thereto by the camera and/or an information recording means to recognize the address of each region or fixedly includes information for recognizing the address of each region.

48. The photographing support system according to claim 46, wherein the photographing support information is photographing information accumulated corresponding to each customer as well as information as to the photographing conditions of the camera which are set in accordance with at least one of photograph image correcting information and classified photographing scenes.

49. An image reproducing method for obtaining the digital image data of the image of a photographing frame, to which an image subject is photographed, of an image recording medium, obtaining output image data by subjecting the obtained digital image data to preset image processing and outputting at least one of a photographic print and a displayed image based on the output image data, comprising the steps of:

capturing photographing information in association with the image of the photographing frame;

capturing supplementary information relating to at least a part of the captured photographing information; and adding the captured supplementary information to at least one of the photographic print and the displayed image.

50. The image reproducing method according to claim 49, wherein the image recording medium is a photographic film, and the digital image data is obtained by photoelectrically reading the image of a photographing frame photographed to the photograph film.

51. The image reproducing method according to claim 49, wherein the image recording medium is a digital recording medium, and the digital image data is directly recorded to the digital data recording medium by being photographed with a digital photographing device and then read from the digital data recording medium.

52. The image reproducing method according to claim 49, further comprising the steps of:

determining the similarity between respective photographing frames based on the photographing information; and

subjecting the image data of a plurality of similar

frames which are determined to have similarity to similar image processing so that the qualities of the images reproduced from a plurality of the similar frames are made identical.

53. The image reproducing method according to claim 49, wherein an image recording medium having a photographing image recording region and a supplementary information recording region is further used as the image recording medium, and when supplementary information is recorded to the supplementary information recording region, the supplementary information is reproduced with a camera on which the image recording medium is mounted and the image recorded to the photographing image recording region is output, the supplementary information recorded to the supplementary information recording region is automatically or selectively recorded to at least one of the front surface and the back surface of a photographic print, a displayed image output on display means or both.

54. The image reproducing method according to claim 49, wherein an image recording medium having a photographing image recording region and a supplementary information recording region is further used as the image recording medium, and a photographing support method is

executed when an image subject is photographed, the photographing support method comprising the steps of:

recording photographing support information to the supplementary information recording region before an image is photographed to the photographed image recording region;

reading the photographing support information from the supplementary information recording region with information reading means mounted on a camera in photographing; and

executing at least one of the control of the photographing operation carried out by the camera and the reproduction of the photographing support information in accordance with the read photographing support information.

55. An image reproducing apparatus including image input means for obtaining the digital image data of the image of a photographing frame, to which an image subject is photographed, of an image recording medium, image processing means for obtaining output image data by subjecting the digital image data obtained by the image input means to preset image processing, and image outputting means for outputting at least one of a photographic print and a displayed image based on the output image data which is output from the image processing means, comprising:



photographing information capture means for capturing photographing information in association with the image of the photographing frame;

supplementary information capture means for capturing supplementary information relating to at least a part of the photographing information captured by said photographing information capture means; and

supplementary information output means for adding the supplementary information captured by said supplementary information capture means to at least one of the photographic print and the displayed image.

56. The image reproducing apparatus according to claim 55, wherein the image recording medium is a photograph film, and said image input means obtains the digital image data by photoelectrically reading the image of the frame photographed to the photograph film.

57. The image reproducing apparatus according to claim 55, wherein the image recording medium is a digital recording medium, and said image input means obtains the digital image data, which is directly recorded to the digital data recording medium by being photographed with a digital photographing device, by reading it from the digital data recording medium.

58. The image reproducing apparatus according to claim 55, further comprising similarity determination means for determining the similarity between a plurality of the photographing frames based on the photographing information captured by said photographing information capture means, wherein said image processing means subjects the digital image data of a plurality of the similar frames which are determined to have similarity by said similarity determination means to similar image processing so that the qualities of the images reproduced from a plurality of the similar frames are made identical.

59. A camera on which a recording medium having a photographing image recording region and a supplementary information recording region is mounted, wherein supplementary information is recorded to the supplementary information recording region and wherein the recorded supplementary information is reproduced from the supplementary information recording region.

60. An image reproducing apparatus for outputting an image recorded to a photographing image recording region of a recording medium having the photographing image recording region and a supplementary information recording region,

wherein supplementary information is recorded to the supplementary information recording region of the recording medium and wherein the supplementary information recorded to the supplementary information recording region is recorded automatically or selectively to at least one of the front surface and back surface of a photographic print, a displayed image output on display means or both.

61. The image reproducing apparatus according to claim 60, wherein the image is recorded to the photographing image recording region of the recording medium by photographing a subject with a camera on which the recording medium is mounted.

62. The image reproducing apparatus according to claim 61, wherein the supplementary information recorded to the supplementary information recording region of the recording medium is reproduced with the camera on which the recording medium is mounted.

63. An image reproducing method, comprising the steps of:

recording supplementary information to a supplementary information recording region using a recording medium having a photographing image recording

region and the supplementary information recording region;  
and

automatically or selectively recording the  
supplementary information recorded to the supplementary  
information recording region to at least one of the front  
surface and back surface of a photographic print, a  
displayed image output on display means or both when the  
image recorded to the photographing image recording region  
of the recording medium is output.

64. An image photographing method, comprising the  
steps of:

recording supplementary information to a  
supplementary information recording region using a  
recording medium having a photographing image recording  
region and the supplementary information recording region;  
and

reproducing the supplementary information with a  
camera on which the recording medium is mounted.